

Appln. No. 10/525,926
Amdt. Dated September 13, 2006
Reply to Office Action of June 14, 2006

Amendments to the Drawings

The attached sheet of drawings includes changes to Figure 1. This sheet replaces the original sheet.

Attachment: Replacement Sheet

REMARKS

In the Office action dated June 14, 2006, the Examiner objected to certain reference arrows in the drawings; objected to the specification at page 5; rejected claim 12 under 35 U.S.C. 112, first paragraph and rejected claims 1-23 under 35 U.S.C. 112, second paragraph; rejected claims 1-7, 11-15, and 17-23 under 35 U.S.C. 103(a) as being unpatentable over McCormick et al in view of Vyskocil; and rejected claims 9-10 and 16 under 35 U.S.C. 103(a) as being unpatentable over McCormick et al in view of Waber as applied to claim 1 and further in view of Gilges et al.

DRAWINGS

Applicant has submitted concurrently herewith, amended an amended drawing correcting the arrows from reference numerals 9, 10, and 12 and 8, 10, and 11. Numerals 8, 9 are directed to first and second gear units; numeral 10 is directed to the spurwheel drive; and numerals 11, 12 are directed to first and second double helical gears.

SPECIFICATION

The phrase at page 5, lines 1-2, "a diagonal angle on the first and/or second spiral-toothed gearwheel in the range of, for example, 50 to 85⁶ can be used" has been amended to read "a diagonal angle on the first and/or second spiral-toothed gearwheel in the range of, for example, 50 to 85° can be used." The phrase at page 5, line 6, "transmission ratio lower than 25 and lower than 1" has been amended to read "transmission ratio lower than 25 and greater than 1." These amendments are seen to make these statements clear and overcome the objection.

35 USC § 112

With respect to claim 1, the phrase "exhibits a self-locking helically toothed spur-wheel gear" has been amended to read "that includes a spur-wheel gear having helical teeth causing self-locking." With respect to claim 5, claim 5 has been amended to provide a proper antecedent basis for "the motor." With respect to claim 7, claim 7 has been amended to provide proper antecedent basis for "the drive shafts" and "the motor." With respect to claim 9, the phrase ", in particular a so-called harmonic drive" has been deleted and included as a new dependent claim 24. With respect to claim 12, the phrase "has a transmission ratio of between 25 and 1" has been substituted for the phrase " $I=25$ and $I<1$." With respect to claim 22, the phrase "preferably 1 to 7 and especially preferably 1 to 4" has been deleted and included in new dependent claims 25 and 26. The above amendments are seen as overcoming the claim objections under § 112.

35 USC § 103(a)

Claim 1 is patentable over the cited prior art. Selected pages 397, 403, 427, and 432 from the text "Design of Machine Elements" by Virgil Moring Faires, Fourth Edition are attached. Also attached are selected pages from the internet from Wikipedia on Gear. It can easily be seen that a worm gear is not a helical gear and neither reference teaches a helical gear. The examiner has already concluded that McCormick et al does not disclose spiral-toothed gears. Vyskocil discloses a servomotor having a drive motor for rotating a worm gear 19a that drives a worm wheel 19 connected to a spindle nut 15 via a ring 17 to move adjusting spindle 55. It can be seen that the teeth of the worm wheel 19 are parallel to the axis of the adjusting spindle 55. Thus the axial teeth of the worm wheel 19 have only point contact with the spiral teeth of the worm gear 19a. See paragraph 15 of present application. Vyskocil does not teach a line contact between the helical teeth of the helical gear and the spiral teeth of the first and second spiral-toothed gearwheels causing the self-locking of claim 1. Further Vyskocil does not teach a double helical gear having one set of helical teeth engaging a first gearwheel and another set of helical teeth engaging a second gearwheel.

Claims 2-7, 11-15 and 17-23 are dependent upon claim 1 and therefore are allowable for the reasons stated with respect to claim 1. The reasons for rejection are no longer valid in view of the distinctions with respect to claim 1. Further with respect to claim 12, as stated in paragraph 24 of the present application, the self-locking feature is only present for transmission ratios up to a certain lowest transmission ratio in a worm gear, with the double helical gear a transmission ratio lower than 25 and greater than 1 can be realized without having to relinquish the self-locking or self-braking feature.

Claim 8 is dependent upon claim 1 and therefore are allowable for the reasons stated with respect to claim 1. The reasons for rejection are no longer valid in view of the distinctions with respect to claim 1. Thus adding Waber as a reference does not render claim 8 obvious.

Claims 9-10 and 16 are dependent upon claim 1 and therefore are allowable for the reasons stated with respect to claim 1. The reasons for rejection are no longer valid in view of the distinctions with respect to claim 1. The examiner has not relied upon Vyskocil in rejecting these claims and therefore none of the cited art teach a spur-wheel gear with helical teeth causing self-locking. Thus adding Waber and Gilges et al as references do not render claims 9-10 and 16 obvious.

Applicants have made certain voluntary amendments to the claims. The amendments to claim 1, other than those identified with respect to the § 112 rejection, are voluntary amendments to clarify

the translation and to eliminate unnecessary limitations in the claim. Claim 2 has been voluntarily amended to add the verb "is". Claim 3 has been voluntarily amended to depend from claim 2 to provide antecedent basis for "the rotating spindle" and the adjective "bar shaped" has been deleted as unnecessarily limiting. Claim 4 has been voluntarily amended because "first spiral toothed gearwheel" has been added to claim 1. Claim 6 has been voluntarily amended due to the voluntary amendments made to claim 1. The amendments to claim 7, other than those identified with respect to the § 112 rejection, are voluntary amendments to clarify the location of the drive shafts and to eliminate unnecessary limitations in the claim. Claim 8 has been voluntarily amended to provide antecedent basis for the claim limitations in view of the voluntary amendments to claim 1. The amendments to claim 9, other than those identified with respect to the § 112 rejection, are voluntary amendments to clarify the location of the reduction gear and to eliminate unnecessary limitations in the claim. Claim 10 has been voluntarily amended to provide antecedent basis for the claim limitations in view of the amendments to claims 1 and 9. Claim 11 has been voluntarily amended to avoid including both a broad and narrow range in the same claim. Claim 13 has been voluntarily amended to delete unnecessary wording and to eliminate unnecessary limitations in the claim. Claim 14 has been voluntarily amended to clarify the claim language due to the translation. Claim 15 has been voluntarily amended to depend from claim 2. Claim 17 has been voluntarily amended to depend from claim 2 and to clarify the language due to the translation. Claims 18-20 have been voluntarily amended to eliminate unnecessary wording. Claim 21 has been voluntarily amended to depend from claim 6 due to amendments to claims 1 and 5. Claim 23 has been voluntarily amended to depend from claim 7 due to amendments to claim 1. These amendments were voluntary and none of these amendments were required for purposes of patentability. Thus Applicant is entitled to the application of the Doctrine of Equivalents under *Festo* with respect to the amended limitations.

New claims 24-28 have been added to further claim the present invention in view of the claim amendments.

CONCLUSIONS

During the course of these remarks, Applicants have at times referred to particular limitations of the claims, which are not shown in the applied prior art. This short-hand approach to discussing the claims should not be construed to mean that the other claimed limitations are not part of the claimed invention. They are as required by law. Consequently, when interpreting the claims, each of the claims should be construed as a whole, and patentability determined in light of this required claim

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construction. Applicants reserve the right to submit the original claims in a continuing application and prosecute those original claims fully without regard to any amendments made to those claims in the present application. Applicants do not give up any scope of the original claims due to the claims amendments in the present application.

If a petition for extension of time is necessary in order for this paper to be deemed timely filed, please consider this a petition therefore. If any fee is due, please appropriately charge such fee to Deposit Account No. 03-2769 of Conley Rose, P.C., Houston, Texas.

The Commissioner is authorized to charge any additional fees incurred in this application to Deposit Account No. 03-2769 of Conley Rose, P.C., Houston, Texas.

If the Examiner has any questions or comments regarding this communication, he is invited to contact the undersigned to expedite the resolution of this application.

The Examiner is respectfully requested to enter into the record the above amendments prior to calculating the filing fee on the application referenced above.

Respectfully submitted,



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